

Claim 3 (Twice Amended) A process for producing a titanium catalyst for reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent, said process comprising reacting a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom);

wherein the compound having a carbon-carbon unsaturated bond is not styrene; and

wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent is not a polymerization reaction.

Claim 8 (Twice Amended) A process for producing an organotitanium reacting reagent, said process comprising reacting together a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom), and a compound having a carbon-carbon unsaturated bond which is not styrene; and

wherein the organotitanium reacting reagent is not used in a polymerization reaction.

Claim 11 (Twice Amended) A process for an addition reaction which comprises combining a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent, in the presence of a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom);

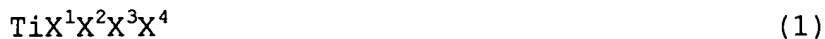
wherein the compound having a carbon-carbon unsaturated bond is not styrene; and

wherein the addition reaction is not a polymerization reaction.

Claim 12 (Twice Amended) A process for an addition reaction which comprises

adding to an organotitanium reacting reagent comprising:

a titanium compound represented by formula (I) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$

group (where Rx and Ry denote independently a C₁₋₂₀ alkyl group or aralkyl group), and any two of X¹, X², X³, and X⁴ may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound



(where R¹ denotes a C₂₋₁₀ alkyl group having a hydrogen atom at the β position and X⁵ denotes a halogen atom), and a compound having a carbon-carbon unsaturated bond,

a compound having an electrophilic functional group or an electrophilic reagent, thereby performing an addition reaction on the compound having a carbon-carbon unsaturated bond in the presence of said organotitanium reacting reagent,

wherein the compound having a carbon-carbon unsaturated bond is not styrene; and

wherein the addition reaction is not a polymerization reaction.

Claim 25. (Amended) A titanium catalyst for reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic

reagent, said titanium catalyst being composed of a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom);

wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and

wherein the C_{2-10} alkyl group of R^1 does not act as a nucleophile in the reaction; and

wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent is not a polymerization reaction.

Claim 26. (Amended) A process for producing a titanium catalyst for reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent, said process comprising reacting a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom);

wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and

wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic

functional group or an electrophilic reagent is not a polymerization reaction.

Claim 27. (Amended) An organotitanium reacting reagent which is composed of a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom), and a compound having a carbon-carbon unsaturated bond;

wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and

wherein the C₂₋₁₀ alkyl group of R¹ does not act as a nucleophile in the reaction; and

wherein the organotitanium reacting reagent is not used in a polymerization reaction.

Claim 28. (Amended) A process for producing an organotitanium reacting reagent, said process comprising reacting together a titanium compound represented by the formula (1) below



(where X¹, X², X³, and X⁴ denote independently a halogen atom, C₁₋₂₀ alkoxy group, aralkyloxy group, aryloxy group, or -NR_xR_y group (where R_x and R_y denote independently a C₁₋₂₀ alkyl group or aralkyl group), and any two of X¹, X², X³, and X⁴ may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R¹ denotes a C₂₋₁₀ alkyl group having a hydrogen atom at the β position and X⁵ denotes a halogen atom), and a compound having a carbon-carbon unsaturated bond;

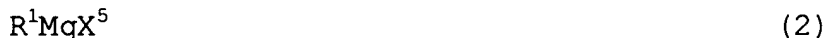
wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group

consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and
wherein the organotitanium reacting reagent is not used in a polymerization reaction.

Claim 29. (Amended) A process for an addition reaction which comprises combining a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent, in the presence of a titanium compound represented by the formula (1) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom);

wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group

consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and
wherein the addition reaction is not a polymerization
reaction.

Claim 30. (Amended) A process for an addition reaction which comprises adding to an organotitanium reacting reagent comprising:

a titanium compound represented by formula (I) below



(where X^1 , X^2 , X^3 , and X^4 denote independently a halogen atom, C_{1-20} alkoxy group, aralkyloxy group, aryloxy group, or $-\text{NR}_x\text{R}_y$ group (where R_x and R_y denote independently a C_{1-20} alkyl group or aralkyl group), and any two of X^1 , X^2 , X^3 , and X^4 may form a ring) and a Grignard reagent represented by the formula (2) below in a molar amount 1-10 times as much as the titanium compound,



(where R^1 denotes a C_{2-10} alkyl group having a hydrogen atom at the β position and X^5 denotes a halogen atom), and a compound having a carbon-carbon unsaturated bond,

a compound having an electrophilic functional group or an electrophilic reagent, thereby performing an addition reaction on

the compound having a carbon-carbon unsaturated bond in the presence of said organotitanium reacting reagent,

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and
wherein when the compound having a carbon-carbon unsaturated bond is an olefin, the olefin is selected from the group consisting of a substituted or unsubstituted halogenated allyl and a substituted or unsubstituted allyl alcohol derivative; and

wherein the addition reaction is not a polymerization reaction.


Please add the following new claims:

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--Claim 31. The process as defined in Claim 3, wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent is an intramolecular or dimerization reaction.--

--Claim 32. The process as defined in Claim 8, wherein the organotitanium reacting reagent is used in an intramolecular or dimerization reaction.--

--Claim 33. The process as defined in Claim 11, wherein the addition reaction is an intramolecular or dimerization reaction.--

--Claim 34. The process as defined in Claim 12, wherein the addition reaction is an intramolecular or dimerization reaction.--

 --Claim 35. The titanium catalyst as defined in Claim 25, wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent is an intramolecular or dimerization reaction.--

--Claim 36. The process as defined in Claim 26, wherein the reaction between a compound having a carbon-carbon unsaturated bond and a compound having an electrophilic functional group or an electrophilic reagent is an intramolecular or dimerization reaction.--

--Claim 37. The organotitanium reacting reagent as defined in Claim 27, wherein the organotitanium reacting reagent is used in an intramolecular or dimerization reaction.--

--Claim 38. The process for producing an organotitanium reacting reagent as defined in Claim 28, wherein the organotitanium reacting reagent is used in an intramolecular or dimerization reaction.--

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--Claim 39. The process as defined in Claim 29, wherein the addition reaction is an intramolecular or dimerization reaction.--

--Claim 40. The process as defined in Claim 30, wherein the addition reaction is an intramolecular or dimerization reaction.--

REMARKS

Claims 3, 4 and 8-40 are pending and stand ready for further action on the merits. Support for the proviso which is now recited in claims 3, 8, 11, 12, 22, 23 and 25-30 can be found in the Examples. Support for new claims 31-40 can be found in line 33 of page 6, line 30 of page 1 and the Examples. No new matter has been added by way of the above amendment.